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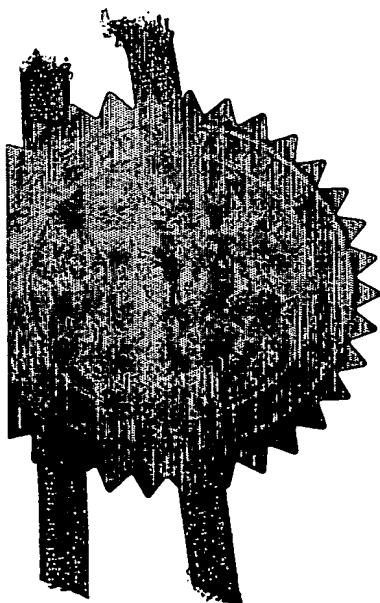
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P016182GB

2. Patent application number

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0301203.6

20 JAN 2003

3. Full name, address and postcode of the or of each applicant (underline all surnames)INTELLPROP LIMITED
PO BOX 626
NATIONAL WESTMINSTER HOUSE
LE TRUCHOT ST PETER PORT
GUERNSEY

Patents ADP number (if you know it)

8845923001

If the applicant is a corporate body, give the country/state of its incorporation

A GUERNSEY COMPANY

4. Title of the invention

TELECOMMUNICATIONS SERVICES APPARATUS

5. Name of your agent (if you have one)

D Young & Co

"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)

21 New Fetter Lane
London
EC4A 1DA

Patents ADP number (if you know it)

59006

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Country

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(day / month / year)**7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application**

Number of earlier application :

Date of filing
(day / month / year)**8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer 'Yes' if**

Yes

a) any applicant named in part 3 is not an inventor, or

b) there is an inventor who is not named as an applicant, or

c) any named applicant is a corporate body.

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Description 10

Claim(s) 0

Abstract 0

Drawing(s) 1 *only*

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Priority documents 0

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Statement of inventorship and right to grant of a patent (Patents Form 7/77) 2

Request for preliminary examination and search (Patents Form 9/77) 0

Request for substantive examination (Patents Form 10/77) 0

Any other documents Facsimile Letter Dated 20 January 2003
(please specify)

11.

I/We request the grant of a patent on the basis of this application.

Signature

D. Young & Co.

Date 20 January 2003

D Young & Co (Agents for the Applicants)

12. Name and daytime telephone number of person to contact in the United Kingdom

Adam Pilch

023 8071 9500

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TELECOMMUNICATIONS SERVICES APPARATUS

This patent concerns the field of telecommunications and in particular the areas of mobile telephone networks and messaging.

5 Text Messaging is established as a popular and effective means of communication for users of mobile telephones. The Short Message Services (SMS) of the GSM mobile telephony system provide an example of such a text messaging facility, and support for the composition, transmission and reception of Short Messages is present in the
10 majority of GSM mobile terminals. Text messaging requires alphanumeric entry using the standardised Man Machine Interface (MMI) of the mobile handset, and also requires that the message be addressed to the desired recipient. The destination address for the message may typically be specified either by entering a Mobile Station ISDN number (MSISDN) that is the mobile telephone number of the desired recipient, or by
15 selecting an entry from the handset's address book that already has the desired MSISDN pre-programmed in. The address book normally provides the MSISDN by using alphanumeric look-up of a name.

The SMS mechanism was originally defined for mobile to mobile text messaging, but
20 has been extended to permit communication between mobiles and fixed entities in the network known as SMS Hosts. SMS Hosts are typically used for receiving the results of SMS voting events, or transmitting messages such as football results in bulk to users who subscribe to a premium service for example. SMS Hosts are responsible for an increasing proportion of SMS traffic.

25 One of the features of SMS is that an identifier corresponding to the sender's identity is normally transmitted to the recipient. It may not be optionally withheld by the sender. Exceptions to this include certain specialised services which may be offered by an operator, such as chat or dating whereby an alternative or temporary CLI is
30 presented to the recipient, permitting reply but obscuring the originator's identity. Apart from such exceptions, the Calling Line Identity (CLI) is normally sent and may

be displayed in the form of an MSISDN, though most handsets will translate this to an alphanumeric name if there is a corresponding MSISDN entry in the handset's address book. This provides ease of recognition of the sender, without the recipient having to remember telephone numbers. The mobile CLI feature is analagous to the CLI facility available on fixed networks. Another benefit of receiving CLI is that a reply to the message is more easily achieved, without having to explicitly specify the return address. The MMI for mobile handsets in GSM defines Reply as a standard feature.

Prior art allows a mobile subscriber to send a text message from a mobile handset and have the message delivered as an email to a specified email address. However the syntax for specifying the email address on the mobile handset is cumbersome and slow, and hence the facility when offered by a network is relatively little used. A further disadvantage of this arrangement is that the user must know in advance the desired destination email address. Although the domain name of many companies can be guessed, the complete email address of a company department that is able to handle messages or queries sent by email is generally not guessable.

An additional complexity of such SMS to email services is that the reply path requires a correlation mechanism. When an message is originated from an email address and delivered to a mobile telephone, it is desirable that the mobile user should be able to reply to the sender using the SMS Reply function of the handset's MMI. To do this the CLI field of the original message delivered to the handset must contain a valid reply address. Since this can be either an MSISDN number or an 11 character alphanumeric string, it is not generally possible to directly store an email address there. Consequently the network must maintain a correlation mechanism. A special CLI value is generated and sent to the mobile handset with the message. The network stores the CLI value and the corresponding sender's email address. When the user replies, the special CLI is used as the destination address. This address causes the text message to be directed to the network's SMS to email gateway, where the corresponding destination email address is looked up and substituted.

One of the main barriers to growth in communication between individuals and organisations using current mobile messaging techniques is that the user must first know the telephone number or email address of the organisation concerned. In general this may be difficult to achieve for the mobile user, possibly requiring the cumbersome and expensive use of a directory service first.

The present invention overcomes this difficulty by allowing the user to communicate by using the name of a brand, product or service, or of an organisation, as the means of addressing the appropriate destination. Names are readily memorable and are the primary means by which people refer to things in their daily lives, whilst numbers are not so memorable.

The present invention allows the user to send a text message using a name, which may for example be the name of a brand, product, service or organisation. The name is specified in the body of the text message using a pre-defined syntax. For example, in a preferred embodiment, the name is specified at the beginning of the text message body, delimited from any subsequent message by a defined character or characters, such as a space. The completed message is then sent to a service number which may preferably be a memorable short code, such as 111, or 622 (representing the associated key-letters M2B referring to a possible name for the service such as 'mobile2brand').

As an example the message "Debenhams Do you have a store in Birmingham" sent to 111 could be delivered automatically as an email to info@debenhams.com. A reply to this email would be delivered automatically back to the sending mobile phone. This scheme provides hugely increased connectivity between people that was not possible before, and connectivity is known to be a precursor to increased traffic.

According to the invention there is provided apparatus for use with a mobile telephone network operable to receive text messages from mobile telephone terminals, to recognise characteristics of certain text messages that indicate that they are to be processed according to the invention, and to pass other messages on for normal delivery, wherein the recognised text messages are processed to extract an

alphanumeric identifier from the message body representing the desired delivery destination, the identifier is translated to an email address by means of a database or lookup table, and the processed message is converted to an email format and delivered by email to the translated email address, and further providing that a reply to the email
5 is delivered to the senders mobile terminal.

Key advantages of the invention over the prior art are that readily memorable names of almost any length may be used to send a text message to a company or brand name, without the user having to know a full email address or telephone number of the
10 company. In the case of sending to a brand name, it is not even necessary to know the identity of the company. No correlation mechanism for replies is required in the network, and so no unique address range needs to be reserved for generating CLIs for this purpose. The invention provides a direct link between brand name owners and the general public, allowing companies to communicate directly with the public and to
15 capture the CLIs of users who contact them or reply.

Referring to Figure 1, the user of a mobile telephone is connected to a mobile network via an MSC [1]. Short messages originated by the user pass through an SMS router [2] or equivalent means for diverting certain messages. The SMS Router identifies certain
20 messages according to their characteristics, and routes these messages to a Message Processing means [3]. Other messages follow the normal path through the network and are delivered either directly to a destination MSC [7] or via an SMSC [4] for store and forward delivery. The message processing means is operable to extract a destination identifier from the message body and translate this to an email address using a lookup
25 table or database, and to send the processed message via an email gateway [5] where the message is converted to email format and delivered via an email network to the recipient email system [6]. The recipient email system may generate an email reply, in which case this is delivered via the email gateway, which converts the reply to SMS format and passes it to the Message Processing means. The reply is then delivered to
30 the originator either directly via the SMS Router, or by a store and forward method using the SMSC.

The operation of the invention is now described in detail by means of a specific example. The example uses the invention to allow a mobile network subscriber to send a message to a brand identity without knowing any telephone number or email address relating to the company that owns the brand.

5

In this example a mobile subscriber, perhaps prompted by advertising or a desire for current information, wishes to send a message to a company that manufactures a product called <CHOCOBAR>. The company name is <THE CHOCOLATE COMPANY> but the user is unaware of this. The user composes his message, which
10 consists of the text <CHOCOBAR CURRENT COMPETITIONS?> and sends it to the numeric address 111. The user's MSISDN CLI is referred to as <USERCLI> in the following text.

In this example the brand identity is separated from the message by a space character
15 as a delimiter:

The message properties at this point are—

Originating address	<USERCLI>
Destination address	111
Content	<CHOCOBAR CURRENT COMPETITIONS?>
Format	Mobile originated SMS

The message is sent to the network via the MSC [1] and arrives at the SMS Router [2].
20 The router examines characteristics of the message and identifies this message as one of a class of messages that is to be directed to the Message Processing means. The characteristics that identify the message as such may be for example having a destination address of 111, although other characteristics may be taken into account. Local intelligence in the SMS Router or equivalent function may be used to make this
25 decision, or alternatively a centralised resource such as a Service Control Point may be queried by the SMS Router.

The message is then passed to the Message Processing means [3]. The Message Processing means determines that in this case the message indicates that the message is to be delivered by email to an address associated with <CHOCOBAR>. This determination may be made by means of a lookup table, database or other means. The

5 Message Processing means also determines the new origination address and destination email address to be used.

A new origination address is required in order to ensure that any reply returns via a desired route, which in this example is back through the Message Processing means. In
10 order to avoid destroying the original identifier <CHOCOBAR>, the Message processing means may also store this in some way, though this is not essential. In this example the new origination address is created by including the user's CLI along with an email domain name corresponding to the email gateway, forming the address
<USERCLI>@EMAILGATEWAYDOMAIN.COM>

15 Many other suitable forms of address are possible.

A new destination address is required in order to deliver the message to an appropriate email address. Characteristics of the desired destination address may be looked up in a table or database using the identifier <CHOCOBAR>. In this example the new
20 destination address is <SALES@THECHOCOLATECOMPANY.COM>.

The identifier <CHOCOBAR> could be prepended to the message content for the convenience of the recipient, but this is not essential. The message is now passed to the email gateway [5] where it is converted to email format and delivered via an email
25 network to the recipient email system [6].

The message properties at this point are—

Originating address	<USERCL>@<EMAILGATEWAYDOMAIN.COM>
Destination address	<SALES@THECHOCOLATECOMPANY.COM>
Content	<CHOCOBAR><CURRENT COMPETITIONS?>
Format	Email

5 The primary purpose of the invention has now been demonstrated, which is to allow a user to deliver a message to an appropriate email address using only a text message and a brand name sent to a short code, and with no knowledge of company telephone numbers, company names or email addresses being required. Furthermore, the CLI of the sender is now available to <THE CHOCOLATE COMPANY>.

10 The secondary purpose of the invention is to permit a reply, or origination, path from organisations such as <THE CHOCOLATE COMPANY> to mobile subscribers. Using a reply to the previous case as an example, this works as follows.

15 An email reply consisting of text <CHOCOBAR COMPETITION, PLEASE REPLY WITH 'CHOCOBAR' FOLLOWED BY YOUR FULL NAME TO ENTER> is generated at <THE CHOCOLATE COMPANY>. This may then be sent using the normal reply facilities of standard email systems, whereby the origination address of a message is automatically used as the default reply address.

The reply properties at this point are—

Originating address	<SALES@THECHOCOLATECOMPANY.COM>
Destination address	<USERCLI.<CHOCOBAR>@<EMAILGATEWAYDOMAIN.COM>
Content	<CHOCOBAR COMPETITION, PLEASE REPLY WITH 'CHOCOBAR' FOLLOWED BY YOUR FULL NAME TO ENTER>
Format	Email

5 This message arrives at the email gateway [5], is converted to SMS format and passed to the Message Processing means [3]. The message addresses are then further transformed to be appropriate for the mobile telephone network, and to permit further reply by the user to 111.

In this example, the user's telephone number is extracted from the email destination address.

10

As an alternative, it would be possible to withhold the user's CLI from the email domain, and/or to store it in the apparatus. A unique reference identifier could be stored along with this, and included in the sender's email address, such that it is returned in the destination address of the email reply. The apparatus is then able to
15 retrieve a matching identifier from its store and determine the corresponding user's CLI for delivering the reply to his mobile terminal. This method also allows the number of replies to be controlled, for example limiting this to one reply per original message. Other techniques are possible.

Continuing with the example, the reply properties at this point are—

Originating address	111
Destination address	<USERCLI>
Content	<CHOCOBAR COMPETITION, PLEASE REPLY WITH 'CHOCOBAR' FOLLOWED BY YOUR FULL NAME TO ENTER>
Format	Mobile terminated SMS

111 is returned as the CLI of the reply, so that the user can easily send a further response.

Security issues are important for an email reply path, as with all systems that allow SMS messages to be initiated from the Internet. It is desirable for the mobile network operator to be able to authenticate traffic with a source address indicating for example
10 <THE CHOCOLATE COMPANY> as genuinely originating from there. It is also desirable to be able to block unauthorised traffic from the Internet from obtaining access to mobile subscribers via the apparatus. Known prior art techniques such as Digital signatures can be employed to provide the desired level of security. Using such techniques the mobile network is able to control and police the access to the apparatus.
15 If desired, traffic arriving at the gateway may be restricted to replies to mobile originated messages, or alternatively, particular destinations may be allowed also to originate messages to subscribers.

In a preferred embodiment, spaces in the brand name would be supported even if the
20 chosen delimiter between the addressed brand name and the message was a space. Brand name matching would be performed in such a way that the longest match found would be used. For example, the database might contain entries for

- marks
- marks&spencer
- 25 • marksandspencer

- marks & spencer
- marks and spencer

Whichever of these options the user typed, the database would find the longest match,
~~-----5-----and any space within the brand name in these cases would not be treated as the~~
delimiter.

10 Other transport mechanisms apart from email are possible. For example the apparatus could have a direct connection to certain organisations, or to third party service providers of a mobile telephone network, who might provide connectivity on behalf of the operator. Such interfaces might involve a wide area network other than email, for example using TCP/IP or another protocol.

1/1

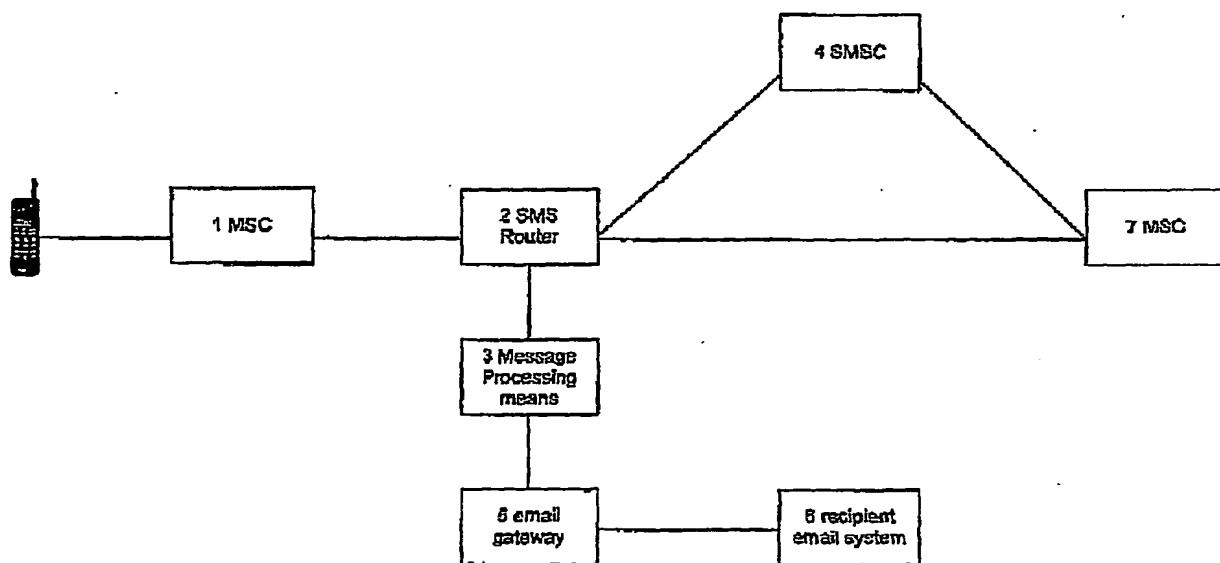


Figure 1

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